L Number	Hits	Search Text	DB	Time stamp
25		handan anna finnannuintoa	IICDAM.	2002/12/12
23	51	header same fingerprint\$4	USPAT; EPO; JPO; DERWENT	2003/12/12 11:18
26	5478	(match\$4 or compar\$4 or equal\$4) same fingerprint\$4	USPAT; EPO; JPO;	2003/12/12 11:18
27	12	digital adjl signature and (((match\$4 or compar\$4 or equal\$4) same fingerprint\$4)	DERWENT USPAT; EPO; JPO;	2003/12/12
28		<pre>and ((audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header))</pre>	DERWENT	
20	4	((watermark\$ or hash\$4)near4 header) same (MPEG or audio or multimedia or music or song)	USPAT; EPO; JPO; DERWENT	2003/12/12
29	25149	fingerprint\$4 or watermark\$4	USPAT; EPO; JPO;	2003/12/12 11:18
30	53	decrypt\$4 near3 fingerprint\$4	DERWENT USPAT; EPO; JPO;	2003/12/12 11:19
31	332576	MPEG or audio or multimedia or music or song	DERWENT USPAT;	2003/12/12
32	7	(inverse adj2 modifi\$5) and	EPO; JPO; DERWENT USPAT;	11:19
33	76	(fingerprint\$4 or watermark\$4) ((check\$4 or match\$4 or	EPO; JPO; DERWENT USPAT;	11:19
	, 3	compar\$4)near3(hash or signature) same (audio or multimedia or mp3 or music or song or data)) same header	EPO; JPO; DERWENT	11:19
34	8	(hash\$3 near3(audio or song or video or mp3 or mpeg or music or multimedi)) and header	USPAT; EPO; JPO; DERWENT	2003/12/12 11:23
35	56	· · · · · · · ·	USPAT; EPO; JPO;	2003/12/12 11:23
36	207	header near4 (hash\$4)	DERWENT USPAT; EPO; JPO;	2003/12/12 11:24
_	46	header same fingerprint\$4	DERWENT USPAT	2003/12/12 11:17
-	121641	audio or music or MPEG or multimedia	USPAT	2003/12/10 11:22
_	62087	biometric or fingerprint\$4 header	USPAT USPAT	2003/12/10 11:23 2003/12/10
_	15	(audio or music or MPEG or multimedia)	USPAT	2003/12/10 11:23 2003/12/10
_	0	same (biometric or fingerprint\$4) same header (audio or music or MPEG or multimedia)	USPAT	12:24
		same (biometric or fingerprint\$4) same header same digital adj1 signature	USPAI	11:29
-	0	(audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header same digital and signature	USPAT	2003/12/10 11:29
-	2	recalculat\$4 near5 fingerprint\$4	USPAT	2003/12/10 11:32
_	5 3276	recomp\$5 near5 fingerprint\$4 (match\$4 or compar\$4 or equal\$4) same	USPAT USPAT	2003/12/10 11:32 2003/12/12
_	14	<pre>fingerprint\$4 ((match\$4 or compar\$4 or equal\$4) same</pre>	USPAT	11:18 2003/12/10
		<pre>fingerprint\$4) and ((audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header)</pre>		14:00

Search History 12/12/03 11:24:49 AM Page 1

-				
-	12	digital adjl signature and (((match\$4 or	USPAT	2003/12/12
		compar\$4 or equal\$4) same fingerprint\$4)		11:18
Ĺ		and ((audio or music or MPEG or		
<u></u>		multimedia) same (biometric or		
		fingerprint\$4) same header))		
] -	42	decrypt\$4 near3 fingerprint\$4	USPAT	2003/12/12
				11:18
-	12		USPAT	2003/12/10
		compar\$4 or equal\$4) same fingerprint\$4)		14:45
1		and ((audio or music or MPEG or		1
		multimedia) same (biometric or		
		fingerprint\$4) same header))) and	ļ	
		(decrypt\$4 near3 fingerprint\$4)		
-	1	("5838790").PN.	USPAT	2003/12/10
				12:56
-	121	·	USPAT	2003/12/10
		accuracy		14:23
-	201	(watermark\$ or hash\$4)near4 header	USPAT	2003/12/11
			i	07:36
-	133712	MPEG or audio or multimedia or music or	USPAT	2003/12/12
		song		11:19
1 -	4	((watermark\$ or hash\$4)near4 header) same	USPAT	2003/12/12
1		(MPEG or audio or multimedia or music or		11:18
1		song)		
_	1074		USPAT	2003/12/11
1		program or signal or song or multimedia)		08:11
-	1125	1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	USPAT	2003/12/11
	_	program or signal or song or multimedia)		07:46
-	7	header same (fingerprint\$3 near2 (data or	USPAT	2003/12/11
		file or program or signal or song or		07:40
		multimedia))		
-	383	, , , , , , , , , , , , , , , , , , , ,	USPAT	2003/12/11
		multimedia or MP3 or mpeg)		07:55
-	0	header same (fingerprint\$3 near2 (signal	USPAT	2003/12/11
1		or song or multimedia or MP3 or mpeg))		07:47
-	61		USPAT	2003/12/11
	100	or song or multimedia or MP3 or mpeg))		07:54
-	126	,	USPAT	2003/12/11
		multimedia or MP3 or mpeg)		07:56
-	13	header same (hash\$3 near2 (signal or song	USPAT	2003/12/11
	075	or multimedia or MP3 or mpeg))		10:59
-	975	hash\$3 near2 (data)	USPAT	2003/12/11
				07:56
-	52	(hash\$3 near2 (data)) same header	USPAT	2003/12/11
	417			07:59
-	41/	fingerprint adj1 data	USPAT	2003/12/11
1.				08:01
-	1	(fingerprint adj1 data) same header	USPAT	2003/12/11
1_	_	/fingamminh na==0 /3=5= = 513		08:01
1 -	5		USPAT	2003/12/11
		program or signal or song or multimedia)		08:19
	126) same header	,,,a,,,,	0000/10/10
-	126	fingerprint\$3 near3 data near5 match\$4	USPAT	2003/12/11
		/finanumuin#63	***	08:20
1	6	(fingerprint\$3 near3 data near5 match\$4)	USPAT	2003/12/11
_	1075	and header	Man	08:22
-	1275	(fingerprint4 or hash) near3(data or song	USPAT	2003/12/11
_	75	or mp3 or mpeg or music or file)	IIC D N M	08:23
	/3	header same ((fingerprint4 or hash)	USPAT	2003/12/11
		near3(data or song or mp3 or mpeg or music or file))		08:25
_	8644	(data near2 ID)or (song near2 ID) or	IISDAM	2003/12/11
	""	(music near2 ID) or (mp3 near2 ID) or	USPAT	2003/12/11
		(music hearz ID) or (mp3 hearz ID) or (audio hear2 ID)		08:47
1_	122	i i	IIC DAT	2002/12/11
	122	ID)or (song near2 ID) or (music near2 ID)	USPAT	2003/12/11
		or (mp3 near2 ID) or (music near2 ID)		08:27
_	6		IIC D A TT	2002/12/11
	"	ID)or (song near2 ID) or (music near2 ID)	USPAT	2003/12/11
]	or (mp3 near2 ID) or (music near2 ID) or (mp3 near2 ID) or (audio near2 ID)))		08:29
		same header		
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Or mp3 or mpeg or multimedia or file	-	751		USPAT	
85 header same (signature or hash or fingerprint) same (audio or music or mp3 or mpeg or multimedia) 179 match54 or compar\$4 or check\$4) near4 (fingerprint adj2 data) match 64 (match54 or compar\$4 or check\$4) near4 (fingerprint adj2 data) match 64 (match54 or compar\$4 or check\$4) near4 (fingerprint adj2 data) match 64 (match54 or compar\$4 or check\$4) near4 (fingerprint adj2 data) match 64 (match54 or compar\$4 or check\$4) near4 (fingerprint adj2 data) match 64 (match54 or compar\$4 or check\$4) near4 (fingerprint adj2 data) match 64 (match54 or compar\$4 or check\$4) near4 match 65 (match54 or compar\$4 or check\$4) near4 match 65 (match54 or compar\$4 near2 flash) match 65 (match 64 match 65 (match 65 (mat					08:46
fingerprint) same (audio or music or mp3 or mpeg or multimedia)					
or mpeg or multimedia) 19	-	85	header same (signature or hash or	USPAT	2003/12/11
or mpeg or multimedia) 19	ļ.		fingerprint) same (audio or music or mp3		08:40
179					
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-		•		001111	
(fingerprint adj2 data) and digital adj1 signature 08:43 108:43 2003/12/11 08:45 108:45 2003/12/11 08:45 2003/12/11 08:45 2003/12/11 08:45 2003/12/11 08:45 2003/12/11 08:46 2003/12/11 08:46 2003/12/11 08:46 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:48 2003/12/11 08:49 2003/12/11 08:58 2003/12/11 09:01 2003/12/11 09:01 2003/12/11 09:01 2003/12/11 09:01 2003/12/11 09:01 2003/12/11 09:01 2003/12/11 09:01 2003/12/11 09:01 2003/12/11 09:01 2003/12/11	_	10		HCDNT	
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R652					08:48
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533 program same header software adj1 id or mpeg3 adj1 id or mps adj1 id or mpeg3 adj1 id or music adj1 id or song adj1 id check\$4 or match\$4 or compar\$4)near3(hash or song adj1 id or mpeg3 adj1 id or song adj1 id) and (check\$4 or match\$4 or compar\$4)near3(hash or signature) ((header same (software adj1 ID or program adj1 id or mpeg3 adj1 id or music adj1 id or mpeg3 adj1 id or music adj1 id or mpeg3 adj1 id or m		'			08:58
533 software adj1 ID or program adj1 id or audio adj1 id or mp3 adj1 id or mpeg3 adj1 id or song adj1 id or song adj1 id or check\$4 or match\$4 or compar\$4)near3(hash or signature)					
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- 5015 check\$4 or match\$4 or compar\$4)near3(hash or signature - 859440 audio or multimedia or mp3 or music or song or data - 2083 (check\$4 or match\$4 or compar\$4)near3(hash or signature) same (audio or multimedia or mp3 or music or					
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(audio or multimedia or mp3 or music or	1-	2083		USPAT	
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song or data)					
		L	song or data)		

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-	75	((check\$4 or match\$4 or	USPAT	2003/12/12
1		compar\$4)near3(hash or signature) same		11:19
_		(audio or multimedia or mp3 or music or		
		song or data)) same header		
-	557	fingerprint adjl data or hash adjl data	USPAT	2003/12/11
				09:26
-	12	(fingerprint adj1 data or hash adj1 data)	USPAT	2003/12/11
	756	same header	IICD NO	09:27 2003/12/11
-	/56	fingerprint near2 data	USPAT	09:27
_	2	header same (fingerprint near2 data)	USPAT	2003/12/11
ł		neader same (lingerprint hearz data)	ODIAL	09:30
_	30	hash\$3 near3(audio or song or video or	USPAT	2003/12/11
		mp3 or mpeg or music or multimedi)		09:31
-	1	(hash\$3 near3(audio or song or video or	USPAT	2003/12/11
		mp3 or mpeg or music or multimedi)) same		09:31
		header		
-	8	(hash\$3 near3(audio or song or video or	USPAT	2003/12/12
		mp3 or mpeg or music or multimedi)) and		11:22
		header		/
-	189	header near4 (hash\$4)	USPAT	2003/12/12
_	647	headen neard (abadkaya)	IIC D N TT	11:24 2003/12/11
	647	header near4 (checksum)	USPAT	09:35
-	794	header near4(hash or checksum or	USPAT	2003/12/11
	','"	fingerprint\$4)		09:36
_	1293047	song or music or multimedia or video or	USPAT	2003/12/11
	,	content or mp3 or data		09:56
_	793	(header near4(hash or checksum or	USPAT	2003/12/11
		fingerprint\$4)) and (song or music or		09:37
		multimedia or video or content or mp3 or		
		data)		
-	571	(header near4(hash or checksum or	USPAT	2003/12/11
1		fingerprint\$4)) same (song or music or		09:37
		multimedia or video or content or mp3 or		
	2635	data) digital adj1 signature	USPAT	2003/12/11
-	2633	digital adji signatule	USPAI	09:37
 _	23	((header near4(hash or checksum or	USPAT	2003/12/11
İ		fingerprint\$4)) same (song or music or	"	09:41
		multimedia or video or content or mp3 or		
		data)) and (digital adj1 signature)		
-	4	((watermark\$ or hash\$4)near4 header) same	USPAT	2003/12/11
		(MPEG or audio or multimedia or music or		09:43
1	_	song)		
-	7	fingerprint near4 header	USPAT	2003/12/11
	60	MDE game headen	IICDAM	09:54
1 -	60	MD5 same header	USPAT	09:55
1_	60	(song or music or multimedia or video or	USPAT	2003/12/11
		content or mp3 or data) and (MD5 same		09:55
		header)		' ' '
-	868796	song or music or multimedia or video or	USPAT	2003/12/11
1		content or mp3		09:56
-	56	(song or music or multimedia or video or	USPAT	2003/12/12
1		content or mp3) and (MD5 same header)		11:23
-	1127	file adj1 header	USPAT	2003/12/11
1_	65	hondon samo (watarman) 64)	USPAT	09:57
-	63	header same(watermark\$4)	USFAI	2003/12/11
-	483934	audio or music or song or multimedia or	USPAT	2003/12/11
	.00554	video or program or mp3 or mpeg	"""	10:02
-	63	(header same (watermark\$4)) and (audio or	USPAT	2003/12/11
		music or song or multimedia or video or		10:20
		program or mp3 or mpeg)		
-	0	(embed\$4 or insert\$4)near4 fingerprint\$4	USPAT	2003/12/11
		near5 header		10:59
-	13		USPAT	2003/12/11
		same header	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	11:02
-	20	,	USPAT	2003/12/11
L	L	same header_	l	13:33

Page 4

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-	0	inverse adj2 modifi\$5 same fingerprint\$4	USPAT	2003/12/11
				13:34
	3	inverse adj2 modifi\$5 same watermark\$4	USPAT	2003/12/11
				13:35
-	11682	fingerprint\$4 or watermark\$4	USPAT	2003/12/12
İ				11:18
-	7	(inverse adj2 modifi\$5) and	USPAT	2003/12/12
i		(fingerprint\$4 or watermark\$4)		11:19
-	0	inverse adj2 modifi\$5 near5 allow\$4	USPAT	2003/12/11
		•		13:54
-	157	inverse adj2 modifi\$5	USPAT	2003/12/12
				06:00
-	157	inverse adj2 modifi\$5	USPAT	2003/12/11
		-		14:57
-	63701	inverse adj2 modifi\$5 adn header	USPAT	2003/12/11
		-		14:57
-	24	inverse adj2 modifi\$5 and header	USPAT	2003/12/12
<u> </u>		-		09:00
-	0	inverse adj2 modification same	USPAT	2003/12/11
		fingerprint\$4		15:09
-	0	inverse adj2 modifi\$5 same fingerprint\$4	USPAT	2003/12/11
'				15:09
-	3	inverse adj2 modifi\$5 same watermark\$5	USPAT	2003/12/11
				15:16
-	28	inverse adj2 transform\$5 near6	USPAT	2003/12/11
		advantage\$3		15:21
-	0	IDCI and watermark\$4	USPAT	2003/12/12
				05:58
-	39	IDCI	USPAT	2003/12/12
1				05:59
-	0	inverse adj2 modifi\$5 near4 allow\$4	USPAT	2003/12/12
				06:01
-	157	inverse adj2 modifi\$5	USPAT	2003/12/12
				07:46
-	68	watermark near2 allow\$4	USPAT	2003/12/12
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-	1	("5892891").PN.	USPAT	2003/12/12
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L Number	Hits	Search Text	DB	Time stamp
_25	51	header same fingerprint\$4	USPAT;	2003/12/12
-			EPO; JPO;	11:18
			DERWENT	
26	5478	(match\$4 or compar\$4 or equal\$4) same	USPAT;	2003/12/12
		fingerprint\$4	EPO; JPO;	11:18
0.7		12 1 12 2 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DERWENT	0000/10/10
27	12	digital adj1 signature and (((match\$4 or compar\$4 or equal\$4) same fingerprint\$4)	USPAT; EPO; JPO;	2003/12/12 11:18
		and ((audio or music or MPEG or	DERWENT	11.10
		multimedia) same (biometric or		
		fingerprint\$4) same header))		
28	4	((watermark\$ or hash\$4)near4 header) same	USPAT;	2003/12/12
		(MPEG or audio or multimedia or music or	EPO; JPO;	11:18
		song)	DERWENT	
29	25149	fingerprint\$4 or watermark\$4	USPAT;	2003/12/12
			EPO; JPO;	11:30
30	53	decrypt\$4 near3 fingerprint\$4	DERWENT USPAT;	2003/12/12
30	33	decrypt nears ringerprint;	EPO; JPO;	11:19
			DERWENT	
31	332576	MPEG or audio or multimedia or music or	USPAT;	2003/12/12
_		song	EPO; JPO;	11:30
20			DERWENT	
32	7	(inverse adj2 modifi\$5) and	USPAT;	2003/12/12
		(fingerprint\$4 or watermark\$4)	EPO; JPO; DERWENT	11:19
33	76	((check\$4 or match\$4 or	USPAT;	2003/12/12
	'*	compar\$4)near3(hash or signature) same	EPO; JPO;	11:19
		(audio or multimedia or mp3 or music or	DERWENT	
		song or data)) same header		
34	8	(hash\$3 near3(audio or song or video or	USPAT;	2003/12/12
		mp3 or mpeg or music or multimedi)) and	EPO; JPO;	11:23
35	56	header	DERWENT USPAT;	2003/12/12
35	36	(song or music or multimedia or video or content or mp3) and (MD5 same header)	EPO; JPO;	11:23
1		content of mps , and (PDs same neader)	DERWENT	11.23
36	207	header near4 (hash\$4)	USPAT;	2003/12/12
i			EPO; JPO;	11:24
_	_		DERWENT	
37	523	380/200-205.ccls.	USPAT;	2003/12/12
			EPO; JPO;	11:25
38	88	380/200.ccls.	DERWENT USPAT;	2003/12/12
		300,200.0013.	EPO; JPO;	11:25
	1		DERWENT	=
39	955	380/54.ccls. or 380/210.ccls. or	USPAT;	2003/12/12
		380/217.ccls. or 380/229.ccls. or	EPO; JPO;	11:26
40	2007	380/236-239.ccls. or 380/241.ccls.	DERWENT	2003/13/13
40	3097	713/160.ccls. or 713/161.ccls. or 713/165.ccls. or 713/176.ccls. or	USPAT; EPO; JPO;	2003/12/12 11:27
		713/163.ccis. or 713/176.ccis. or 713/181.ccls. or	DERWENT	11.4/
	1	713/101.ccls. of 713/101.ccls. of 713/101.ccls.		
41	2544	705/51.ccls. or 705/57-59.ccls. or	USPAT;	2003/12/12
		705/67.ccls. or 382/115-119.ccls. or	EPO; JPO;	11:28
1		382/124.ccls. or 704/200.ccls.	DERWENT	
42	6471	380/200-205.ccls. or (380/54.ccls. or	USPAT;	2003/12/12
	1	380/210.ccls. or 380/217.ccls. or 380/229.ccls. or 380/236-239.ccls. or	EPO; JPO; DERWENT	11:28
		380/241.ccls.) or (713/160.ccls. or	DEVMENT	
		713/161.ccls. or 713/165.ccls. or		
		713/176.ccls. or 713/181.ccls. or		
		713/181.ccls. or 713/189.ccls. or		
		713/200-202.ccls.) or (705/51.ccls. or		
	i	705/57-59.ccls. or 705/67.ccls. or		
		382/115-119.ccls. or 382/124.ccls. or 704/200.ccls.)		
	L	104/200.CCIS.)	L	l

43	8647	((data near2 ID)or (song near2 ID) or	USPAT	2003/12/12
33	""	(music near2 ID) or (mp3 near2 ID) or	OSFAI	11:29
[1	(audio near2 ID)) or ((song near2 hash)		*****
-		or (music near2 hash) or (mp3 near2 hash)		
		or (audio near2 hash) or (mpeg near2	1	
		hash)) and (380/200-205.ccls. or		
		(380/54.ccls. or 380/210.ccls. or		
1		380/217.ccls. or 380/229.ccls. or	1	
		380/236-239.ccls. or 380/241.ccls.) or		
		(713/160.ccls. or 713/161.ccls. or		ĺ
	1	713/165.ccls. or 713/176.ccls. or		
		713/181.ccls. or 713/181.ccls. or		
	i	713/189.ccls. or 713/200-202.ccls.) or		
1	1	(705/51.ccls. or 705/57-59.ccls. or		
1		705/67.ccls. or 382/115-119.ccls. or		
44	338	382/124.ccls. or 704/200.ccls.)) (check\$4 or match\$4 or	HCDAT	2002/12/12
""	338	compar\$4)near3(hash or signature) same	USPAT	2003/12/12 11:29
	1	(audio or multimedia or mp3 or music or		11.43
		song or data) and (380/200-205.ccls. or		
		(380/54.ccls. or 380/210.ccls. or		
	1	380/217.ccls. or 380/229.ccls. or		
		380/236-239.ccls. or 380/241.ccls.) or		
		(713/160.ccls. or 713/161.ccls. or		
		713/165.ccls. or 713/176.ccls. or		
		713/181.ccls. or 713/181.ccls. or		
		713/189.ccls. or 713/200-202.ccls.) or		
		(705/51.ccls. or 705/57-59.ccls. or		
1		705/67.ccls. or 382/115-119.ccls. or		
		382/124.ccls. or 704/200.ccls.))		
45	520	software adj1 ID or program adj1 id or	USPAT	2003/12/12
		audio adjl id or mp3 adjl id or mpeg3		11:30
		adjl id or music adjl id or song adjl id		
		and (380/200-205.ccls. or (380/54.ccls.		[
		or 380/210.ccls. or 380/217.ccls. or		
1		380/229.ccls. or 380/236-239.ccls. or 380/241.ccls.) or (713/160.ccls. or		
		713/161.ccls. or 713/165.ccls. or		
		713/161.ccls. of 713/163.ccls. of 713/176.ccls. or		
		713/181.ccls. or 713/189.ccls. or		
		713/200-202.ccls.) or (705/51.ccls. or		
		705/57-59.ccls. or 705/67.ccls. or		
		382/115-119.ccls. or 382/124.ccls. or		
		704/200.ccls.))		
46	41	header near4 (checksum) and	USPAT	2003/12/12
		(380/200-205.ccls. or (380/54.ccls. or		11:30
		380/210.ccls. or 380/217.ccls. or		
		380/229.ccls. or 380/236-239.ccls. or		
		380/241.ccls.) or (713/160.ccls. or		
		713/161.ccls. or 713/165.ccls. or		
		713/176.ccls. or 713/181.ccls. or		
		713/181.ccls. or 713/189.ccls. or		
		713/200-202.ccls.) or (705/51.ccls. or 705/57-59.ccls. or 705/67.ccls. or		
		382/115-119.ccls. or 382/124.ccls. or		
		704/200.ccls.))		
47	17	· · · · · · · · · · · · · · · · · · ·	USPAT	2003/12/12
] - '	music or song or multimedia or video or	22171	11:30
		program or mp3 or mpeg) and		
		(380/200-205.ccls. or (380/54.ccls. or		
		380/210.ccls. or 380/217.ccls. or		
		380/229.ccls. or 380/236-239.ccls. or		
		380/241.ccls.) or (713/160.ccls. or		٥
		713/161.ccls. or 713/165.ccls. or		
		713/176.ccls. or 713/181.ccls. or		
		713/181.ccls. or 713/189.ccls. or	•	
		713/200-202.ccls.) or (705/51.ccls. or		
		705/57-59.ccls. or 705/67.ccls. or		
		382/115-119.ccls. or 382/124.ccls. or		i .
]	704/200.ccls.))	Į.	i

49	303196	(380/200-205.ccls. or (380/54.ccls. or 380/210.ccls. or 380/217.ccls. or 380/229.ccls. or 380/236-239.ccls. or 380/241.ccls.) or (713/160.ccls. or 713/161.ccls. or 713/165.ccls. or 713/176.ccls. or 713/181.ccls. or 713/181.ccls. or 713/189.ccls. or 713/200-202.ccls.) or (705/51.ccls. or 705/57-59.ccls. or 382/115-119.ccls. or 382/124.ccls. or 704/200.ccls.))	USPAT; EPO; JPO; DERWENT	2003/12/12 11:30
		song and (380/200-205.ccls. or (380/54.ccls. or 380/210.ccls. or 380/217.ccls. or 380/229.ccls. or 380/236-239.ccls. or 380/241.ccls.) or (713/160.ccls. or 713/161.ccls. or 713/165.ccls. or 713/176.ccls. or 713/181.ccls. or 713/181.ccls. or 713/189.ccls. or 713/200-202.ccls.) or (705/51.ccls. or 705/57-59.ccls. or 705/67.ccls. or 382/115-119.ccls. or 382/124.ccls. or 704/200.ccls.))	EPO; JPO; DERWENT	11:30
-	46		USPAT	2003/12/12 11:17
-	121641	audio or music or MPEG or multimedia	USPAT	2003/12/10
-	11178	biometric or fingerprint\$4	USPAT	2003/12/10
	62087		USPAT	2003/12/10
_	15	(audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header	USPAT	2003/12/10
-	0	(audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header same digital adj1 signature	USPAT	2003/12/10
-	0	(audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header same digital and signature	USPAT	2003/12/10 11:29
-	2	recalculat\$4 near5 fingerprint\$4	USPAT	2003/12/10
-	5	recomp\$5 near5 fingerprint\$4	USPAT	2003/12/10 11:32
-	3276	fingerprint\$4	USPAT	2003/12/12 11:18
-	14	<pre>((match\$4 or compar\$4 or equal\$4) same fingerprint\$4) and ((audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header)</pre>	USPAT	2003/12/10
-	12		USPAT	2003/12/12 11:18
-	42	decrypt\$4 near3 fingerprint\$4	USPAT	2003/12/12 11:18
-	12	<pre>(digital adj1 signature and (((match\$4 or compar\$4 or equal\$4) same fingerprint\$4) and ((audio or music or MPEG or multimedia) same (biometric or fingerprint\$4) same header))) and (decrypt\$4 near3 fingerprint\$4)</pre>	USPAT	2003/12/10 14:45
-	1	("5838790").PN.	USPAT	2003/12/10
-	121	(biometric or fingerprint\$4)near4	USPAT	2003/12/10 14:23
-	201	(watermark\$ or hash\$4)near4 header	USPAT	2003/12/11 07:36
-	133712	MPEG or audio or multimedia or music or song	USPAT	2003/12/12 11:19

-	4	((watermark\$ or hash\$4)near4 header) same	USPAT	2003/12/12
	1	(MPEG or audio or multimedia or music or		11:18
-		song)		
-	1074	fingerprint near2 (data or file or	USPAT	2003/12/11
	1125	program or signal or song or multimedia)	,,,c,,,,,,,	08:11
-	1123	fingerprint\$3 near2 (data or file or program or signal or song or multimedia)	USPAT	
	7	header same (fingerprint\$3 near2 (data or	USPAT	07:46 2003/12/11
-	·	file or program or signal or song or	USPAI	07:40
		multimedia))		07.40
_	383		USPAT	2003/12/11
	303	multimedia or MP3 or mpeg)	OSTAL	07:55
_	l 0	header same (fingerprint\$3 near2 (signal	USPAT	2003/12/11
		or song or multimedia or MP3 or mpeg))		07:47
_	61		USPAT	2003/12/11
		or song or multimedia or MP3 or mpeg))		07:54
_	126		USPAT	2003/12/11
		multimedia or MP3 or mpeg)		07:56
-	13	header same (hash\$3 near2 (signal or song	USPAT	2003/12/11
		or multimedia or MP3 or mpeg))		10:59
-	975	hash\$3 near2 (data)	USPAT	2003/12/11
				07:56
-	52	(hash\$3 near2 (data)) same header	USPAT	2003/12/11
		<u></u>		07:59
-	417	fingerprint adj1 data	USPAT	2003/12/11
				08:01
-	1	(fingerprint adj1 data) same header	USPAT	2003/12/11
1_	5	/fingsymmint nasm2 /data am file am	псруш	08:01 2003/12/11
	,	(fingerprint near2 (data or file or program or signal or song or multimedia)	USPAT	08:19
) same header	1	00:19
_	126		USPAT	2003/12/11
	1	l lingerprinted hears data hears matchy	OSPAI	08:20
-	6	(fingerprint\$3 near3 data near5 match\$4)	USPAT	2003/12/11
		and header	001111	08:22
-	1275	(fingerprint4 or hash) near3(data or song	USPAT	2003/12/11
		or mp3 or mpeg or music or file)		08:23
-	75	header same ((fingerprint4 or hash)	USPAT	2003/12/11
		near3(data or song or mp3 or mpeg or		08:25
	İ	music or file))		
-	8644	(data near2 ID)or (song near2 ID) or	USPAT	2003/12/11
		(music near2 ID) or (mp3 near2 ID) or		08:47
	100	(audio near2 ID)		
-	122		USPAT	2003/12/11
		ID) or (song near2 ID) or (music near2 ID)		08:27
_	6	or (mp3 near2 ID) or (audio near2 ID)) ((signature or hash) same ((data near2	IICD A TT	2002/12/11
		((Signature or hash) same ((data hear/2 ID)or (song near/2 ID) or (music near/2 ID)	USPAT	2003/12/11
1		or (mp3 near2 ID) or (audio near2 ID))		00.49
		same header		
-	751	header same (signature or hash or	USPAT	2003/12/11
1		fingerprint) same (audio or music or data	 	08:46
		or mp3 or mpeg or multimedia or file)		
-	85	header same (signature or hash or	USPAT	2003/12/11
1		fingerprint) same (audio or music or mp3		08:40
1	[or mpeg or multimedia)		
-	179	(match\$4 or compar\$4 or check\$4) near4	USPAT	2003/12/11
1		(fingerprint adj2 data)		08:42
-	4	((match\$4 or compar\$4 or check\$4) near4	USPAT	2003/12/11
1		(fingerprint adj2 data)) and header		08:41
] -	10	(match\$4 or compar\$4 or check\$4) near4	USPAT	2003/12/11
		(fingerprint adj2 data) and digital adj1		08:43
_	2853	signature	IIC D A M	2002/12/11
-	2053	file near2 header	USPAT	2003/12/11
_	9	(song near2 hash) or (music near2 hash)	USPAT	08:45 2003/12/11
		or (mp3 near2 hash) or (audio near2 hash)	OSFAI	08:48
		or (mpeg near2 hash)		00.10
<u> </u>		1 1		

	0.650	1 (1)	T	T 0 0 0 0 10 0 10 0
-	8652		USPAT	2003/12/12
	ľ	(music near2 ID) or (mp3 near2 ID) or		11:29
•		(audio near2 ID)) or ((song near2 hash)		
		or (music near2 hash) or (mp3 near2 hash)		
		or (audio near2 hash) or (mpeg near2		
	744	hash))	l	1 /
-	/44	header same (((data near2 ID)or (song	USPAT	2003/12/11
		near2 ID) or (music near2 ID) or (mp3		08:49
		near2 ID) or (audio near2 ID)) or ((song		
		near2 hash) or (music near2 hash) or (mp3		
		near2 hash) or (audio near2 hash) or		
1	5015	(mpeg near2 hash)))		/
-	5015		USPAT	2003/12/11
	403197	or signature		09:00
-	403197	,	USPAT	2003/12/11
1_	705	program	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	08:50
-	'03	(check\$4 or match\$4 or	USPAT	2003/12/11
		compar\$4)near3(hash or signature) same (audio or music or multimedia or song or	•	08:51
		program)		l
_	17	(check\$4 or match\$4 or	USPAT	2002/12/11
	'	compar\$4)near3(hash or signature) same	USPAT	2003/12/11
	[(audio or music or multimedia or song or		08:58
		program) same header		
_	533		USPAT	2002/12/12
		audio adj1 id or mp3 adj1 id or mpeg3	USFAI	2003/12/12
		adjl id or music adjl id or song adjl id		11:29
_	5015	check\$4 or match\$4 or compar\$4) near3 (hash	USPAT	2003/12/11
	3013	or signature	USPAI	09:14
_	1	(header same (software adj1 ID or program	USPAT	2003/12/11
	<u> </u>	adjl id or audio adjl id or mp3 adjl id	OSFAI	09:01
		or mpeg3 adj1 id or music adj1 id or		05.01
		song adj1 id)) and (check\$4 or match\$4 or		
		compar\$4) near3 (hash or signature)		
_	1		USPAT	2003/12/11
		program adj1 id or audio adj1 id or mp3	051711	09:01
		adjl id or mpeg3 adjl id or music adjl		03.01
		id or song adj1 id)) and (check\$4 or		
		match\$4 or compar\$4) near3 (hash or		
		signature)) and (check\$4 or match\$4 or		
		compar\$4) near3 (hash or signature)		
-	71	header same (software adj1 ID or program	USPAT	2003/12/11
		adj1 id or audio adj1 id or mp3 adj1 id		09:12
		or mpeg3 adj1 id or music adj1 id or		
		song adj1 id)		
-	5015		USPAT	2003/12/11
		or signature		09:14
-	859440	audio or multimedia or mp3 or music or	USPAT	2003/12/11
1	_	song or data		09:15
-	2083	(check\$4 or match\$4 or	USPAT	2003/12/12
1		compar\$4)near3(hash or signature) same		11:29
		(audio or multimedia or mp3 or music or		
		song or data)		
-	75	((check\$4 or match\$4 or	USPAT	2003/12/12
	:	compar\$4) near3 (hash or signature) same		11:19
		(audio or multimedia or mp3 or music or		
		song or data)) same header		
-	557	fingerprint adj1 data or hash adj1 data	USPAT	2003/12/11
_	10	(fingonnmint add) data an best sate as a	IICD2M	09:26
1 -	12	(fingerprint adjl data or hash adjl data) same header	USPAT	2003/12/11
_	756	same neader fingerprint near2 data	IICDAM	09:27
	/36	Tingelpiint nealz data	USPAT	2003/12/11
_	2	header same (fingerprint near2 data)	IICDAM	09:27
	۷	neader same (ringerprint nearz data)	USPAT	2003/12/11
]_	30	hash\$3 near3(audio or song or video or	IICDAM	09:30
	50	mp3 or mpeg or music or multimedi)	USPAT	2003/12/11
-	1	(hash\$3 near3(audio or song or video or	מעם את	09:31
	- 1	mp3 or mpeg or music or multimedi)) same	USPAT	2003/12/11 09:31
	l	header		09:31
L				

=	T 8	(hash\$3 near3(audio or song or video or	USPAT	2003/12/12
		mp3 or mpeg or music or multimedi)) and header		11:22
-	189	header near4 (hash\$4)	USPAT	2003/12/12
-	647	header near4 (checksum)	USPAT	2003/12/12
-	794	header near4(hash or checksum or fingerprint\$4)	USPAT	2003/12/11
-	1293047	song or music or multimedia or video or content or mp3 or data	USPAT	2003/12/11
-	793		USPAT	2003/12/11
		multimedia or video or content or mp3 or data)		09.37
-	571		USPAT	2003/12/11
		multimedia or video or content or mp3 or data)		09.37
_	2635	digital adj1 signature	USPAT	2003/12/11
-	23	((header near4(hash or checksum or fingerprint\$4)) same (song or music or	USPAT	2003/12/11
		multimedia or video or content or mp3 or data)) and (digital adj1 signature)		09.41
-	4		USPAT	2003/12/11
_	7	song) fingerprint near4 header	HCDAM	2003/12/11
	60		USPAT	09:54
	60		USPAT	2003/12/11
_	80	(song or music or multimedia or video or content or mp3 or data) and (MD5 same header)	USPAT	2003/12/11 09:55
-	868796	·	USPAT	2003/12/11
_	56	, •	USPAT	09:56 2003/12/12
_	1127		USPAT	11:23 2003/12/11
-	65	header same(watermark\$4)	USPAT	09:57
-	483934	audio or music or song or multimedia or video or program or mp3 or mpeg	USPAT	10:02 2003/12/11
-	63	(header same(watermark\$4)) and (audio or	USPAT	10:02
	0	music or song or multimedia or video or program or mp3 or mpeg) (embed\$4 or insert\$4)near4 fingerprint\$4	Habba	11:30
	13	near5 header	USPAT	2003/12/11 10:59
	20	same header	USPAT	2003/12/11
	0	same header	USPAT	2003/12/11 13:33
		inverse adj2 modifi\$5 same fingerprint\$4	USPAT	2003/12/11
	11602	3 · · · · · · · · · · · · · · · · · · ·	USPAT	2003/12/11 13:35
	11682	fingerprint\$4 or watermark\$4	USPAT	2003/12/12
	0	(inverse adj2 modifi\$5) and (fingerprint\$4 or watermark\$4)	USPAT	2003/12/12
		inverse adj2 modifi\$5 near5 allow\$4	USPAT	2003/12/11 13:54
	157	inverse adj2 modifi\$5	USPAT	2003/12/12
	157	inverse adj2 modifi\$5	USPAT	2003/12/11 14:57
-	63701	inverse adj2 modifi\$5 adn header	USPAT	2003/12/11 14:57
_	24	inverse adj2 modifi\$5 and header	USPAT	2003/12/12

	0	inverse adj2 modification same	USPAT	2003/12/11
-	٠	1	USPAI	1
1		fingerprint\$4		15:09
	0	inverse adj2 modifi\$5 same fingerprint\$4	USPAT	2003/12/11
				15:09
-	3	inverse adj2 modifi\$5 same watermark\$5	USPAT	2003/12/11
1				15:16
i -	28	inverse adj2 transform\$5 near6	USPAT	2003/12/11
		advantage\$3	Ì	15:21
1 -	0	IDCI and watermark\$4	USPAT	2003/12/12
		·		05:58
-	39	IDCI	USPAT	2003/12/12
				05:59
j -	0	inverse adj2 modifi\$5 near4 allow\$4	USPAT	2003/12/12
				06:01
1 -	157	inverse adj2 modifi\$5	USPAT	2003/12/12
1		-		07:46
-	68	watermark near2 allow\$4	USPAT	2003/12/12
				07:58
-	1	("5892891").PN.	USPAT	2003/12/12
				09:01
-	1	("5982891").PN.	USPAT	2003/12/12
				09:01

Status: Path 1 of [Dialog Information Services via Modem] ### Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID dialog.com) Trying 31060000009999...Open DIALOG INFORMATION SERVICES PLEASE LOGON: ****** HHHHHHHH SSSSSSS? ### Status: Signing onto Dialog ***** ENTER PASSWORD: ****** HHHHHHHH SSSSSSS? ****** Welcome to DIALOG ### Status: Connected Dialog level 03.05.00D Last logoff: 10dec03 07:40:32 Logon file405 12dec03 11:44:15 *** ANNOUNCEMENT *** --File 654 - US published applications from March 15, 2001 to the present are now online. Please see HELP NEWS 654 for details. --File 581 - The 2003 annual reload of Population Demographics is complete. Please see Help News581 for details. --File 990 - NewsRoom now contains February 2003 to current records. File 992 - NewsRoom 2003 archive has been newly created and contains records from January 2003. The oldest months's records roll out of File 990 and into File 992 on the first weekend of each month. To search all 2003 records BEGIN 990, 992, or B NEWS2003, a new OneSearch category. -- Connect Time joins DialUnits as pricing options on Dialog. See HELP CONNECT for information. *** *** --SourceOne patents are now delivered to your email inbox as PDF replacing TIFF delivery. See HELP SOURCE1 for more information. +++ -- Important news for public and academic libraries. See HELP LIBRARY for more information. -- Important Notice to Freelance Authors--See HELP FREELANCE for more information NEW FILES RELEASED ***DIOGENES: Adverse Drug Events Database (File 181) ***Emergency Room (File 454), Hospital Inpatient Profiles (File 462), and Hospital Outpatient Profiles (File 463) ***World News Connection (File 985) ***Dialog NewsRoom - 2003 Archive (File 992) ***TRADEMARKSCAN-Czech Republic (File 680) ***TRADEMARKSCAN-Hungary (File 681) ***TRADEMARKSCAN-Poland (File 682) UPDATING RESUMED *** RELOADED ***Population Demographics - (File 581)

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  2. Database, Rates, & Command Descriptions
  3. Help in Choosing Databases for Your Topic
     Customer Services (telephone assistance, training, seminars, etc.)
     Product Descriptions
 Connections:
  6. DIALOG(R) Document Delivery
  7. Data Star(R)
    (c) 2003 Dialog, a Thomson business.
                                             All rights reserved.
      /H = Help
                           /L = Logoff
                                                /NOMENU = Command Mode
Enter an option number to view information or to connect to an online
 service. Enter a BEGIN command plus a file number to search a database
(e.g., Bl for ERIC).
?b 2,6,8,34,434,35,62,65,77,99,144,94,233,238,266,15,16,239,98,275,621,636,547,674,256,
278,9,148,696
>>>
             77 does not exist
            238 does not exist
>>>
            278 does not exist
>>>3 of the specified files are not available
       12dec03 11:45:42 User264815 Session D36.1
            $0.00
                     0.151 DialUnits FileHomeBase
     $0.00 Estimated cost FileHomeBase
     $0.46 TELNET
     $0.46 Estimated cost this search
     $0.46 Estimated total session cost 0.151 DialUnits
SYSTEM: OS - DIALOG OneSearch
         2:INSPEC 1969-2003/Nov W5
  File
         (c) 2003 Institution of Electrical Engineers
        2: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
  File
         6:NTIS 1964-2003/Dec W1
         (c) 2003 NTIS, Intl Cpyrght All Rights Res
         8:Ei Compendex(R) 1970-2003/Nov W5
  File
         (c) 2003 Elsevier Eng. Info. Inc.
  File 34:SciSearch(R) Cited Ref Sci 1990-2003/Dec W1
         (c) 2003 Inst for Sci Info
  File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
  File 35:Dissertation Abs Online 1861-2003/Oct
         (c) 2003 ProQuest Info&Learning
  File
        62:SPIN(R) 1975-2003/Oct W4
         (c) 2003 American Institute of Physics
  File 65: Inside Conferences 1993-2003/Dec W1
         (c) 2003 BLDSC all rts. reserv.
```

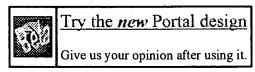
```
& Tech Abs 1983-2003/Oct
 File 99: Wilson Appl. Sc.
         (c) 2003 The HW Wilson Co.
  File 144: Pascal 1973-2003/Nov W5
         (c) 2003 INIST/CNRS
  File 94:JICST-EPlus 1985-2003/Dec W1
         (c) 2003 Japan Science and Tech Corp(JST)
  File 233: Internet & Personal Comp. Abs. 1981-2003/Jul
         (c) 2003, EBSCO Pub.
  File 266:FEDRIP 2003/Oct
         Comp & dist by NTIS, Intl Copyright All Rights Res
        15:ABI/Inform(R) 1971-2003/Dec 11
         (c) 2003 ProQuest Info&Learning
*File 15: Alert feature enhanced for multiple files, duplicate
removal, customized scheduling. See HELP ALERT.
  File 16:Gale Group PROMT(R) 1990-2003/Dec 11
         (c) 2003 The Gale Group
*File 16: Alert feature enhanced for multiple files, duplicate
removal, customized scheduling. See HELP ALERT.
  File 239:Mathsci 1940-2003/Jan
         (c) 2003 American Mathematical Society
        98:General Sci Abs/Full-Text 1984-2003/Oct
         (c) 2003 The HW Wilson Co.
  File 275:Gale Group Computer DB(TM) 1983-2003/Dec 11
         (c) 2003 The Gale Group
  File 621:Gale Group New Prod.Annou.(R) 1985-2003/Dec 12
         (c) 2003 The Gale Group
  File 636:Gale Group Newsletter DB(TM) 1987-2003/Dec 11
         (c) 2003 The Gale Group
  File 547: Experian Business Credit Profiles 2003/Nov W5
         (c) 2003 Experian
  File 674: Computer News Fulltext 1989-2003/Dec W1
         (c) 2003 IDG Communications
  File 256:SoftBase:Reviews,Companies&Prods. 82-2003/Nov
         (c) 2003 Info. Sources Inc
  File
         9:Business & Industry(R) Jul/1994-2003/Dec 11
         (c) 2003 Resp. DB Svcs.
  File 148:Gale Group Trade & Industry DB 1976-2003/Dec 12
         (c) 2003 The Gale Group
*File 148: Alert feature enhanced for multiple files, duplicate
removal, customized scheduling. See HELP ALERT.
  File 696:DIALOG Telecom. Newsletters 1995-2003/Dec 11
         (c) 2003 The Dialog Corp.
      Set Items Description
      --- ----
                 ------
?s (match? or compar? or equal or check? or valid or verif?) (3n) (fingerprint?)
Processing
Processed 10 of 26 files ...
Processing
Processed 20 of 26 files ...
Processing
Completed processing all files
        1503677 MATCH?
        10380681 COMPAR?
        1291072 EQUAL
         1694197 CHECK?
          396318 VALID
                 VERIF?
          989814
           83746 FINGERPRINT?
      S1
           8185
                  (MATCH? OR COMPAR? OR EQUAL OR CHECK? OR VALID OR VERIF?)
                  (3N) (FINGERPRINT?)
?s fingerprint? or watermark?
           83746 FINGERPRINT?
           23104 WATERMARK?
         106079 FINGERPRINT? OR WATERMARK?
?s MPEG or audio or music or multimedia or song?
Processing
```

```
Processed 20 of 26 files
Completed processing all files
          103872 MPEG
          915697 AUDIO
          860325 MUSIC
          806464 MULTIMEDIA
          235863 SONG?
      S3 2337680 MPEG OR AUDIO OR MUSIC OR MULTIMEDIA OR SONG?
?s header (s) s2
           41895 HEADER
          106079 S2
             99 HEADER (S) S2
      S4
?s (signature or hash? or fingerprint?) (s) header?
          284500 SIGNATURE
          66636 HASH?
           83746 FINGERPRINT?
           58976 HEADER?
     S5
            457 (SIGNATURE OR HASH? OR FINGERPRINT?) (S) HEADER?
?s s5 and s3
             457 S5
        2337680 S3
      S6
             62 S5 AND S3
?s (encrypt? or cipher? or encipher?) (s) s1
         227420 ENCRYPT?
          14526 CIPHER?
           1259 ENCIPHER?
           8185 S1
      S7
            189 (ENCRYPT? OR CIPHER? OR ENCIPHER?) (S) S1
?e au=rhoads,geoffrey
Ref
     Items Index-term
E1
         1 AU=RHOADS, WILLIAM DENHAM
         1 AU=RHOADS, WILLIAM T.
E3
         0 *AU=RHOADS,GEOFFREY
E4
         1 AU=RHOADSM CHRISTOPHER
E5
         1 AU=RHOADSMARTINEZ R
         1 AU=RHOADSROBERTS JL
E6
         1 AU=RHOADOS, CHRISTOPHER
E7
         1 AU=RHOBERT
E8
         1 AU=RHOBY RK
E9
E10
         1
            AU=RHOD LARSEN, N.
E11
         1
            AU=RHOD, E.
E12
         3
            AU=RHODA
         Enter P or PAGE for more
?e au=levy,kenneth
Ref Items Index-term
         1 AU=LEVY, ZULEIKA ANTUNES DA SILVA
E1
E2
         1 AU=LEVY,,LIZ
E3
         0 *AU=LEVY, KENNETH
E4
         1 AU=LEVYA A
E5
         1 AU=LEVYA E
E6
         1 AU=LEVYA GARCIA A
E7
         1 AU=LEVYA P
         1 AU=LEVYA V
E8
         1 AU=LEVYA, G.
E9
         3 AU=LEVYA, PHIL
E10
         1 AU=LEVYA, S. K. V.
E11
E12
        49 AU=LEVYADUN S
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1 Effective iterative techniques for fingerprinting design IP

99%

Andrew E. Caldwell , Hyun-Jin Choi , Andrew B. Kahng , Stefanus Mantik , Miodrag Potkonjak , Gang Qu , Jennifer L. Wong

Proceedings of the 36th ACM/IEEE conference on Design automation conference June 1999

2 Software and systems: Constructing a virtual primary key for

99%

fingerprinting relational data
Yingjiu Li , Vipin Swarup , Sushil Jajodia

Proceedings of the 2003 ACM workshop on Digital rights management October 2003

Agrawal and Kiernan's watermarking technique for database relations [1] and Li et al's fingerprinting extension [6] both depend critically on primary key attributes. Hence, those techniques cannot embed marks in database relations without primary key attributes. Further, the techniques are vulnerable to simple attacks that alter or delete the primary key attribute. This paper proposes a new fingerprinting scheme that does not depend on a primary key attribute. The scheme constructs virtual

primar ...

Fingerprinting intellectual property using constraint-addition Gang Ou , Miodrag Potkonjak

99%

Proceedings of the 37th conference on Design automation June 2000

Recently, intellectual property protection (IPP) techniques attracted a great deal of attention from semiconductor, system integration and software companies. A number of watermarking-based techniques have been proposed for IPP. One of the key limitations of watermarking is that it does not facilitate tracing of illegally resold intellectual property (IP). Fingerprinting resolves this problem by providing each customer with a unique instance of functionally identical IP. We propose ...

c ge cf c

h

4 Publicly detectable techniques for the protection virtual components Gang Qu

97%

Proceedings of the 38th conference on Design automation June 2001

Highlighted with the newly released intellectual property (IP) protection white paper by VSI Alliance, the protection of virtual components (VCs) has received a large amount of attention recently. Digital signature is one of the most promising solutions among the known protection mechanisms. However, the trade-off between hard-to-attack and easy-to-detect and the lack of efficient detection schemes are the major obstacles for digital signatures to thrive. In this paper, we propose a new wat ...

5 Software watermarking: models and dynamic embeddings

96%

Christian Collberg , Clark Thomborson

Proceedings of the 26th ACM SIGPLAN-SIGACT symposium on Principles of programming languages January 1999

6 Session 7: content watermarking: Multimedia content screening using a ^{96%} dual watermarking and fingerprinting system

Darko Kirovski, Henrique Malvar, Yacov Yacobi

Proceedings of the tenth ACM international conference on Multimedia December 2002

We present a new dual watermarking and fingerprinting system, where initially all copies of a protected object are identically watermarked using a secret key, but individual detection keys are distinct. By knowing a detection key, an adversary cannot recreate the original content from the watermarked content. However, knowledge of any one detection key is sufficient for modifying the object so that a detector using that key would fail to detect the marks. Detectors using other detection keys wou ...

7 A functional taxonomy for software watermarking

95%

Jasvir Nagra , Clark Thomborson , Christian Collberg

Australian Computer Science Communications, Proceedings of the twenty-fifth Australasian conference on Computer science - Volume 4 January 2002 Volume 24 Issue 1

Despite the recent surge of interest in digital watermarking technology from the research community, we lack a comprehensive and precise terminology for software watermarking. In this paper, we attempt to fill that gap by giving distinctive names for the various protective functions served by software watermarks: Validation Mark, Licensing Mark, Authorship Mark and Fingerprinting Mark. We identify the desirable properties and specific vulnerabilities of each type of watermark, and we illustrate ...

8 VLSI design: Zero overhead watermarking technique for FPGA designs Adarsh K. Jain , Lin Yuan , Pushkin R. Pari , Gang Qu

Proceedings of the 13th ACM Great Lakes Symposium on VLSI April 2003 FPGAs, because of their re-programmability, are becoming very popular for creating and exchanging VLSI intellectual properties (IPs) in the reuse-based design paradigm. Existing watermarking and fingerprinting techniques successfully embed identification information into FPGA designs to deter IP infringement. However, such methods incur timing and/or resource overhead, unpredictable at times, which causes performance degradation. In this paper, we propose a new FPGA watermarking technique that g ...

9 Comparing the usage of digital rights management systems in the

92%

93%

h c g e cf



music, film, and print industry Marc Fetscherin, Matthias Schmid

Proceedings of the 5th international conference on Electronic commerce September 2003

The business of content providers is being threatened by technology advances in hardware, software and IP-networks such as the Internet or peer-to-peer file sharing systems. The result is an increasing amount of illegal copies available on-line as well as off-line. With the emergence of Digital Rights Management Systems (DRMS), the media and entertainment industry seems to have found the appropriate tool to simultaneously fight piracy and to monetize their assets. Although these systems are very ...

10 H204M — watermarking for media: classification, quality evaluation,

92%

41 design improvements

Jana Dittmann, Martin Steinebach, Thomas Kunkelmann, Ludwig Stoffels Proceedings of the 2000 ACM workshops on Multimedia November 2000

Security has become one of the most significant problems for spreading new information technology. Beside cryptographic solutions digital watermarking methods offer several protection possibilities. H204M — Watermarking for Media is a joined project at GMD-IPSI (German National Research Center for Information Technology) and the German broadcast archive DRA funded by the German government to classify, evaluate and improve digital watermarking techniques. Today a wide variety of techniqu ...

11 A secure multicast protocol with copyright protection Hao-hua Chu , Lintian Qiao , Klara Nahrstedt , Hua Wang , Ritesh Jain 90%

ACM SIGCOMM Computer Communication Review April 2002 Volume 32 Issue 2

We present a simple, efficient, and secure multicast protocol with copyright protection in an open and insecure network environment. There is a wide variety of multimedia applications that can benefit from using our secure multicast protocol, e.g., the commercial pay-per-view video multicast, or highly secure military intelligence video conference. Our secure multicast protocol is designed to achieve the following goals. (1) It can run in any open network environment. It does not rely on any sec ...

12 Secure data hiding in wavelet compressed fingerprint images

90%

Nalini K. Ratha , Jonathan H. Connell , Ruud M. Bolle

Proceedings of the 2000 ACM workshops on Multimedia November 2000

With the rapid growth of the Internet, electronic commerce revenue now amounts to several billion US dollars. To avoid fraud and misuse, buyers and sellers desire more secure methods of authentication than today's userid and password combinations. Automated biometrics technology in general, and fingerprints in particular, provide an accurate and reliable authentication method. However, fingerprint-based authentication requires accessing fingerprint images scanned remotely at the user's workst ...

13 Watermarking maps: hiding information in structured data

90%

Sanjeev Khanna , Francis Zane

Proceedings of the eleventh annual ACM-SIAM symposium on Discrete algorithms February 2000

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14 Efficient dynamic traitor tracing

89%

Omer Berkman , Michal Parnas , Jiři Sgall

Proceedings of the eleventh annual ACM-SIAM symposium on Discrete algorithms February 2000

15 Session 7C: Lower bounds for collusion-secure fingerprinting

89%

Chris Peikert , Abhi shelat , Adam Smith

Proceedings of the fourteenth annual ACM-SIAM symposium on Discrete algorithms January 2003

Collusion-secure fingerprinting codes are an important primitive used by many digital watermarking schemes [1, 10, 9]. Boneh and Shaw [3] define a model for these types of codes and present an explicit construction. Their code has length $O(c^3 \log (1/\epsilon))$ and attains security against coalitions of size c with ϵ error. Boneh and Shaw also present a lower bound of Ω ($c^3 \log(1/c\epsilon)$) on the length of any collusion-secu ...

16 Watermarking cyberspace

88%

Hal Berghel

Communications of the ACM November 1997

Volume 40 Issue 11

17 Efficiency of data structures for detecting overlaps in digital documents

87%

Krisztián Monostori , Arkady Zaslavsky , Heinz Schmidt

Australian Computer Science Communications , Proceedings of the 24th Australasian conference on Computer science January 2001

Volume 23 Issue 1

This paper analyses the efficiency of different data structures for detecting overlap in digital documents. Most existing approaches use some hash function to reduce the space requirements for their indices of chunks. Since a hash function can produce the same value for different chunks, false matches are possible. In this paper we propose an algorithm that can be used for eliminating those false matches. This algorithm uses a suffix tree structure, which is space consuming. We define a modified ...

18 Coding and Encryption: An image watermarking technique using

87%

pyramid transform

Qiang Cheng , Thomas S. Huang

Proceedings of the ninth ACM international conference on Multimedia October 2001

An image watermarking technique based on pyramid transforms is proposed. An arbitrary binary pattern is formed into an effective hypothesized pattern and transmitted as a watermark. Multiresolution pyramid transforms are applied to host images, whose characteristics are exploited to embed the watermark. The detector is designed to be effective to a wide range of original signal sources and noise sources. The scheme is designed to achieve efficient trade-offs between perceptual invisibility, robu ...

19 Multimedia content protection by cryptography and watermarking in

87%

4 tamper-resistant hardware

Feng Bao

Proceedings of the 2000 ACM workshops on Multimedia November 2000

With the rapid growth of broadband network, distribution of multimedia via Internet is a must way to go. Content protection has become one of the most significant and challenging problems of this field. In this paper, we propose a general scheme that combines public key cryptography and watermarking technology together, to achieve wonderful content protection. The scheme is reliable, flexible and efficient.

20 Digital watermarking makes its mark

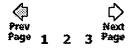
85%

Hal Berghel

netWorker September 1998 Volume 2 Issue 4

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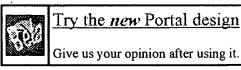
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83% 21 Shape retrieval and watermarking: Shape intrinsic fingerprints for freeform object matching

K. H. Ko, T. Maekawa, N. M. Patrikalakis, H. Masuda, F.-E. Wolter

Proceedings of the eighth ACM symposium on Solid modeling and applications

This paper presents matching and similarity evaluation methods between two NURBS surfaces, and their application to copyright protection of digital data representing solids or NURBS surfaces. Two methods are employed to match objects: the moment and the curvature methods. The moment method uses integral properties, i.e. the volume, the principal moments of inertia and directions, to find the rigid body transformation as well as the scaling factor. The curvature method is based on the Gaussian an ...

22 Robust FPGA intellectual property protection through multiple small

83%



John Lach , William H. Mangione-Smith , Miodrag Potkonjak

Proceedings of the 36th ACM/IEEE conference on Design automation conference June 1999

23 Watermarking techniques for intellectual property protection

83%

A. B. Kahng, J. Lach, W. H. Mangione-Smith, S. Mantik, I. L. Markov, M. Potkonjak, P. Tucker, H. Wang, G. Wolfe

Proceedings of the 35th annual conference on Design automation conference May 1998

Digital system designs are the product of valuable effort and know-how. Their embodiments, from software and HDL program down to device-level netlist and mask data, represent carefully guarded intellectual property (IP). Hence, design methodologies based on IP reuse require new mechanisms to protect the rights of IP

h f ge g e е producers and owners. This paper establishes principles of watermarking-based IP protection, where a watermark is a mechanism for identificatio ...

24 Asymmetric fingerprinting for larger collusions

Birgit Pfitzmann , Michael Waidner

Proceedings of the 4th ACM conference on Computer and communications security April 1997

25 Watermaking three-dimensional polygonal models

Ryutarou Ohbuchi , Hiroshi Masuda , Masaki Aono

Proceedings of the fifth ACM international conference on Multimedia November 1997

26 Assurance in life/nation critical endeavors: Assurance in life/nation

Critical endeavors a panel
Steven J. Greenwald , Marv Schaefer
Proceedings of the 2002 workshop on New security paradigms September 2002

Proceedings of the 2002 workshop on New security paradigms September 2002 Our thesis is that biometric and other intertwined technologies will be used to supplement the work of people in the security field. When these technologies are used, we fear that a high degree of misinterpretation and error is likely. Because of this, we need to identify the technical measures required for these systems. This thesis, along with a justification, and proof sketch, was given to the panelists. Five areas of the technology life-cycle were investigated: modeling, implementation, inter ...

27 Protecting digital media content

Nasir Memon , Ping Wah Wong

Communications of the ACM July 1998

Volume 41 Issue 7

28 Authentication and signature schemes: Print signatures for document 82% authentication

Baoshi Zhu , Jiankang Wu , Mohan S. Kankanhalli

Proceedings of the 10th ACM conference on Computer and comp

Proceedings of the 10th ACM conference on Computer and communication security October 2003

We present a novel solution for authenticating printed paper documents by utilizing the inherent non--repeatable randomness existing in the printing process. For a document printed by a laser-printer, we extract the unique features of the non-repeatable print content for each copy. The shape profiles of this content are used as the feature to represent the uniqueness of that particular printed copy. These features along with some important document content is then captured as the *print signa* ...

29 Session 3A: Optimal probabilistic fingerprint codes

An Gábor Tardos

Proceedings of the thirty-fifth ACM symposium on Theory of computing June 2003 We construct binary codes for fingerprinting. Our codes for n users that are ε -secure against c pirates have length $O(c^2 \log(n/\varepsilon))$. This improves the codes proposed by Boneh and Shaw [3] whose length is approximately the square of this length. Our codes are probabilistic. By proving matching lower bounds we establish that the length of these codes is best within a constant factor for reasonable error

h c g e cf e e f ge ϵ

probabilities. This lower bound generalizes the ...

30 Watermarking of SAT using combinatorial isolation lemmas

80%

Rupak Majumdar , Jennifer L. Wong

Proceedings of the 38th conference on Design automation June 2001

Watermarking of hardware and software designs is an effective mechanism for intellectual property protection (IPP). Two important criteria for watermarking schemes are credibility and fairness. In this paper, we present the unique solutionbased watermarking technique which provides, in a sense, the ultimate answer to both credibility and fairness requirements. Leveraging on a combinatorial theorem of Valiant and Vazirani, we demonstrate how ultimate credibility and complete fairness can a ...

31 Hardware/software IP protection

80%

Marcello Dalpasso , Alessandro Bogliolo , Luca Benini

Proceedings of the 37th conference on Design automation June 2000

Design methodologies based on reuse of intellectual property (IP) components critically depend on techniques to protect IP ownership. IP protection is particularly challenging for hardware/software systems, where an IP core runs embedded software: both the software and the core are valuable IP that must be protected. We propose a new technique for protecting the IP of both processor cores and application software in hardware/software systems. Our approach is based on public-key c ...

32 Digital village: The discipline of Internet forensics

80%

A Hal Berghel

Communications of the ACM August 2003

Volume 46 Issue 8

A well-defined field of study and practice has evolved as a result of network hacker activity.

33 Robust mesh watermarking

80%

Emil Praun , Hugues Hoppe , Adam Finkelstein

Proceedings of the 26th annual conference on Computer graphics and interactive techniques July 1999

34 Behavioral synthesis techniques for intellectual property protection

80%

Inki Hong , Miodrag Potkonjak

Proceedings of the 36th ACM/IEEE conference on Design automation conference June 1999

35 Technical trials and legal tribulations

80%

Scott Craver , Boon-Lock Yeo , Minerva Yeung

Communications of the ACM July 1998

Volume 41 Issue 7

36 Mathematics of computing: Securing Java through software

77%

е

4 watermarking

D. Curran , N. J. Hurley , M. Ó Cinnéide

Proceedings of the 2nd international conference on Principls and practice of porgramming in Java June 2003

h g e f ge An important advantage of Java is its portability due to its use of bytecode. However the use of bytecode allows decompilation of Java programs to gain access to their source code. This makes it easier to pirate Java programs, infringing their copyright. This is a disadvantage of Java in comparison with programming languages that compile to native object code. Software watermarking is a relatively new approach to the problem of copyright protection that involves embedding ownership information in ...

37 Watermarking relational data: framework, algorithms and analysis Rakesh Agrawal , Peter J. Haas , Jerry Kiernan

77%

The VLDB Journal — The International Journal on Very Large Data Bases August 2003

Volume 12 Issue 2

Abstract. We enunciate the need for watermarking database relations to deter data piracy, identify the characteristics of relational data that pose unique challenges for watermarking, and delineate desirable properties of a watermarking system for relational data. We then present an effective watermarking technique geared for relational data. This technique ensures that some bit positions of some of the attributes of some of the tuples contain specific values. The specific bit locations and value ...

38 Alternate distribution strategies for digital music

77%

G. Prem Premkumar

Communications of the ACM September 2003

Volume 46 Issue 9

Digitization of music has created opportunities to reengineer the supply chain and improve its efficiency.

br> But how will it play out?

39 Risks to the public: Risks to the public in computers and related systems 77%

Peter G. Neumann

ACM SIGSOFT Software Engineering Notes March 2003

Volume 28 Issue 2

40 Columns: Public policy: new on-line surveys and digital watermarking

77%

Bob Ellis

ACM SIGGRAPH Computer Graphics February 1999

Volume 33 Issue 1

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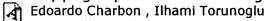
round 53 of 124,998 searched.					
Search within Results					
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Sort by: Title Publication Publication Date Score Binder					
Results 41 - 53 of 53 short listing Prev Next Page 1 2 3 Page					
41 Session 4: innovative solutions: A trusted process to digitally sign a document Boris Balacheff, Liqun Chen, David Plaquin, Graeme Proudler Proceedings of the 2001 workshop on New security paradigms September 2001 This paper describes a method of increasing the trust in open computing platforms, such that a person can have confidence in producing a digital signature using open platforms. The process of using a digital signature to sign a digital document is well understood. Most descriptions assume the correctness of the process of signing a document within a computing platform. In an increasing connected world, this assumption is no longer true when open computing platforms are used. This paper proposes t	77%				
42 Electronic commerce: a half-empty glass? Sasa Dekleva Communications of the AIS June 2000	77%				
43 Hardware metering Farinaz Koushanfar , Gang Qu Proceedings of the 38th conference on Design automation June 2001	77%				
44 Localized watermarking: methodology and application to operation scheduling Darko Kirovski, Miodrag Potkonjak Proceedings of the 1999 IEEE/ACM international conference on Computer-aided design November 1999	77%				

This paper addresses the copyright protection problem of integrated circuits designed with blocks which are originated from multiple design sources. The process consists of

 two phases. First, a compact signature is generated from every block independently and made public. Utilizing such signatures, a design can be decomposed into its original building blocks, regardless of multiple hierarchies. Then, a map of all the blocks can be built, thus allowing to reconstruct the original copyright d ...

45 Copyright protection of designs based on multi source IPs

77%



Proceedings of the 1999 IEEE/ACM international conference on Computer-aided design November 1999

This paper addresses the copyright protection problem of integrated circuits designed with blocks which are originated from multiple design sources. The process consists of two phases. First, a compact signature is generated from every block independently and made public. Utilizing such signatures, a design can be decomposed into its original building blocks, regardless of multiple hierarchies. Then, a map of all the blocks can be built, thus allowing to reconstruct the original copyright d ...

46 A fuzzy commitment scheme

77%



Ari Juels , Martin Wattenberg

Proceedings of the 6th ACM conference on Computer and communications security November 1999

We combine well-known techniques from the areas of error-correcting codes and cryptography to achieve a new type of cryptographic primitive that we refer to as a fuzzy commitment scheme. Like a conventional cryptographic commitment scheme, our fuzzy commitment scheme is both concealing and binding; it is infeasible for an attacker to learn the committed value, and also for the committer to decommit a value in more than one way. In a convent ...

47 Introducing a legal strand in the computer science curriculum

77%



Cristina Cifuentes , Anne Fitzgerald

Proceedings of the third Australasian conference on Computer science education July 1998

48 Intellectual property protection by watermarking combinational logic

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Security has become one of the most significant problems for spreading new information technology. Beside cryptographic solutions digital watermarking methods offer several protection possibilities. H204M — Watermarking for Media is a joined project at GMD-IPSI (German National Research Center for Information Technology) and the German broadcast archive DRA funded by the German government to classify, evaluate and improve digital watermarking techniques. Today a wide variety of techniqu ...

A secure multicast protocol with copyright protection Hao-hua Chu , Lintian Qiao , Klara Nahrstedt , Hua Wang , Ritesh Jain **ACM SIGCOMM Computer Communication Review April 2002** Volume 32 Issue 2

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We present a simple, efficient, and secure multicast protocol with copyright protection in an open and insecure network environment. There is a wide variety of multimedia applications that can benefit from using our secure multicast protocol, e.g., the commercial pay-per-view video multicast, or highly secure military intelligence video conference. Our secure multicast protocol is designed to achieve the following goals. (1) It can run in any open network environment. It does not rely on any sec ...

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An image watermarking technique based on pyramid transforms is proposed. An arbitrary binary pattern is formed into an effective hypothesized pattern and transmitted as a watermark. Multiresolution pyramid transforms are applied to host images, whose characteristics are exploited to embed the watermark. The detector is designed to be effective to a wide range of original signal sources and noise sources. The scheme is designed to achieve efficient trade-offs between perceptual invisibility, robu ...

5 Multimedia content protection by cryptography and watermarking in 1 tamper-resistant hardware

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Feng Bao

Proceedings of the 2000 ACM workshops on Multimedia November 2000

With the rapid growth of broadband network, distribution of multimedia via Internet is a must way to go. Content protection has become one of the most significant and challenging problems of this field. In this paper, we propose a general scheme that combines public key cryptography and watermarking technology together, to achieve wonderful content protection. The scheme is reliable, flexible and efficient.

Fingerprinting intellectual property using constraint-addition Gang Qu , Miodrag Potkonjak

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Proceedings of the 37th conference on Design automation June 2000

Recently, intellectual property protection (IPP) techniques attracted a great deal of attention from semiconductor, system integration and software companies. A number of watermarking-based techniques have been proposed for IPP. One of the key limitations of watermarking is that it does not facilitate tracing of illegally resold intellectual property (IP). Fingerprinting resolves this problem by providing each customer with a unique instance of functionally identical IP. We propose ...

7 Session 7: content watermarking: Multimedia content screening using a 85% di dual watermarking and fingerprinting system Darko Kirovski , Henrique Malvar , Yacov Yacobi

Proceedings of the tenth ACM international conference on Multimedia December 2002

We present a new dual watermarking and fingerprinting system, where initially all copies of a protected object are identically watermarked using a secret key, but individual detection keys are distinct. By knowing a detection key, an adversary cannot recreate the original content from the watermarked content. However, knowledge of any one detection key is sufficient for modifying the object so that a detector using that key would fail to detect the marks. Detectors using other detection keys wou ...

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With the rapid growth of the Internet, electronic commerce revenue now amounts to several billion US dollars. To avoid fraud and misuse, buyers and sellers desire more secure methods of authentication than today's userid and password combinations. Automated biometrics technology in general, and fingerprints in particular, provide an accurate and reliable authentication method. However, fingerprint-based authentication requires accessing fingerprint images scanned remotely at the user's workst ...

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A. B. Kahng , J. Lach , W. H. Mangione-Smith , S. Mantik , I. L. Markov , M. Potkonjak , P. Tucker , H. Wang , G. Wolfe

Proceedings of the 35th annual conference on Design automation conference May 1998

Digital system designs are the product of valuable effort and know-how. Their embodiments, from software and HDL program down to device-level netlist and mask data, represent carefully guarded intellectual property (IP). Hence, design methodologies based on IP reuse require new mechanisms to protect the rights of IP producers and owners. This paper establishes principles of watermarking-based IP protection, where a watermark is a mechanism for identificatio ...

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13 Authentication and signature schemes: Print signatures for document

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Proceedings of the 10th ACM conference on Computer and communication security October 2003

We present a novel solution for authenticating printed paper documents by utilizing the inherent non--repeatable randomness existing in the printing process. For a document printed by a laser-printer, we extract the unique features of the non--repeatable print content for each copy. The shape profiles of this content are used as the feature to represent the uniqueness of that particular printed copy. These features along with some important document content is then captured as the *print signa* ...

14 Software and systems: Constructing a virtual primary key for

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fingerprinting relational data Yingjiu Li, Vipin Swarup, Sushil Jajodia

Proceedings of the 2003 ACM workshop on Digital rights management October

Agrawal and Kiernan's watermarking technique for database relations [1] and Li et al's fingerprinting extension [6] both depend critically on primary key attributes. Hence, those techniques cannot embed marks in database relations without primary key attributes. Further, the techniques are vulnerable to simple attacks that alter or delete the primary key attribute. This paper proposes a new fingerprinting scheme that does not depend on a primary key attribute. The scheme constructs virtual primar ...

15 Shape retrieval and watermarking: Shape intrinsic fingerprints for free- 80%

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K. H. Ko, T. Maekawa, N. M. Patrikalakis, H. Masuda, F.-E. Wolter Proceedings of the eighth ACM symposium on Solid modeling and applications

This paper presents matching and similarity evaluation methods between two NURBS surfaces, and their application to copyright protection of digital data representing solids or NURBS surfaces. Two methods are employed to match objects: the moment and the curvature methods. The moment method uses integral properties, i.e. the volume, the principal moments of inertia and directions, to find the rigid body transformation as well as the scaling factor. The curvature method is based on the Gaussian an ...

16 A functional taxonomy for software watermarking

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Jasvir Nagra , Clark Thomborson , Christian Collberg

Australian Computer Science Communications, Proceedings of the twenty-fifth Australasian conference on Computer science - Volume 4 January 2002 Volume 24 Issue 1

Despite the recent surge of interest in digital watermarking technology from the research community, we lack a comprehensive and precise terminology for software watermarking. In this paper, we attempt to fill that gap by giving distinctive names for the various protective functions served by software watermarks: Validation Mark, Licensing Mark, Authorship Mark and Fingerprinting Mark. We identify the desirable properties and specific vulnerabilities of each type of watermark, and we illustrate ...

17 Watermarking of SAT using combinatorial isolation lemmas

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Rupak Majumdar , Jennifer L. Wong

Proceedings of the 38th conference on Design automation June 2001

Watermarking of hardware and software designs is an effective mechanism for intellectual property protection (IPP). Two important criteria for watermarking schemes are credibility and fairness. In this paper, we present the unique solutionbased watermarking technique which provides, in a sense, the ultimate answer to both credibility and fairness requirements. Leveraging on a combinatorial theorem of Valiant and Vazirani, we demonstrate how ultimate credibility and complete fairness can a ...

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20 Asymmetric fingerprinting for larger collusions
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An important advantage of Java is its portability due to its use of bytecode. However the use of bytecode allows decompilation of Java programs to gain access to their source code. This makes it easier to pirate Java programs, infringing their copyright. This is a disadvantage of Java in comparison with programming languages that compile to native object code. Software watermarking is a relatively new approach to the problem of copyright protection that involves embedding ownership information in ...

26 Watermarking relational data: framework, algorithms and analysis Rakesh Agrawal, Peter J. Haas, Jerry Kiernan

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The VLDB Journal — The International Journal on Very Large Data Bases August 2003

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Abstract.We enunciate the need for watermarking database relations to deter data piracy, identify the characteristics of relational data that pose unique challenges for watermarking, and delineate desirable properties of a watermarking system for relational data. We then present an effective watermarking technique geared for relational data. This technique ensures that some bit positions of some of the attributes of some of the tuples contain specific values. The specific bit locations and value ...

27 VLSI design: Zero overhead watermarking technique for FPGA designs Adarsh K. Jain , Lin Yuan , Pushkin R. Pari , Gang Qu

Proceedings of the 13th ACM Great Lakes Symposium on VLSI April 2003

FPGAs, because of their re-programmability, are becoming very popular for creating and exchanging VLSI intellectual properties (IPs) in the reuse-based design paradigm. Existing watermarking and fingerprinting techniques successfully embed identification information into FPGA designs to deter IP infringement. However, such methods incur timing and/or resource overhead, unpredictable at times, which causes performance degradation. In this paper, we propose a new FPGA watermarking technique that a ...

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Darko Kirovski , Miodrag Potkonjak

Proceedings of the 1999 IEEE/ACM international conference on Computer-aided design November 1999

This paper addresses the copyright protection problem of integrated circuits designed with blocks which are originated from multiple design sources. The process consists of two phases. First, a compact signature is generated from every block independently and made public. Utilizing such signatures, a design can be decomposed into its original building blocks, regardless of multiple hierarchies. Then, a map of all the blocks can be built, thus allowing to reconstruct the original copyright d ...

30 A fuzzy commitment scheme

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Proceedings of the 6th ACM conference on Computer and communications security November 1999

We combine well-known techniques from the areas of error-correcting codes and

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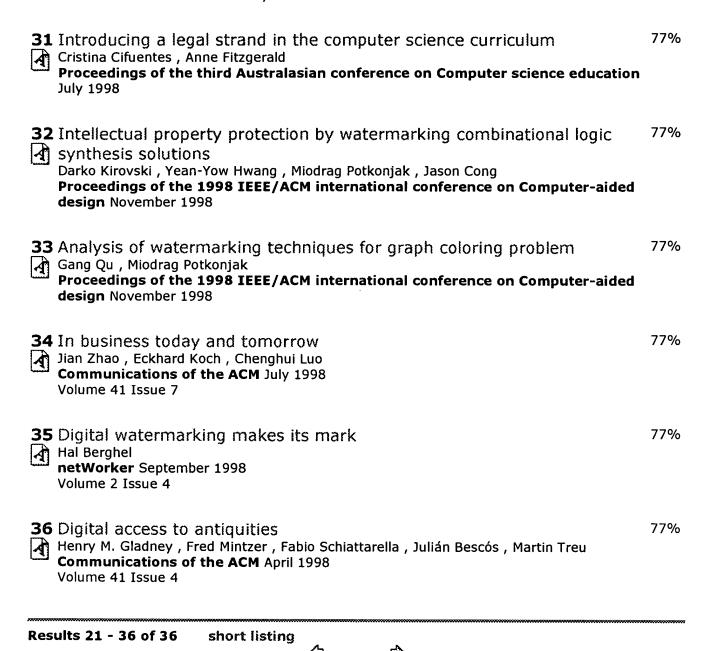
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cryptography to achieve a new type of cryptographic primitive that we refer to as a fuzzy commitment scheme. Like a conventional cryptographic commitment scheme, our fuzzy commitment scheme is both concealing and binding: it is infeasible for an attacker to learn the committed value, and also for the committer to decommit a value in more than one way. In a convent ...



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